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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/630,792 | 07/31/2003 | Takako Yamaguchi | 03500.015110.1 | 7876 |

5514 7590 07/25/2005

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EXAMINER

GUTIERREZ, KEVIN C

ART UNIT PAPER NUMBER

2851

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

| | | | |
|------------------------------|-------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/630,792 | Applicant(s) YAMAGUCHI ET AL. | |
| | Examiner Kevin Gutierrez | Art Unit 2851 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on July 31, 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on July 31, 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/781331.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>July 31, 2003</u> . | 6) <input type="checkbox"/> Other: _____ |

Specification

1. The disclosure is objected to because of the following informalities:
 - a. Page 6, lines 21-22, "...and numeral 101 indicates a light source 105 for exposure." Is unclear.

Appropriate correction is required.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show Page 13, line 8, reference # 640 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 6A, reference #650. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application.

Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must

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be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (5,928,815) in view of Okamoto (2002/0025479) in view of Saito et al (US 2002/01505628) in further view of Mizutani et al (US 2003/0211403).

Regarding claim 13, Martin teaches

- a light source (fig. 4, #30) for generating light for expose;
- "means for controlling a distance between the substrate to be processed and the photomask (fig.4, #24 and col. 6, lines 58-60, where the an actuator device positions the mask with respect to photoresist)."

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Martin does not teach a sample stand, a stage, a photomask with a minute aperture for evanescent light and an aperture for propagating light, nor a photoresist with a film thickness equal to or smaller than the width of a minute aperture.

However, Okamoto teaches

- a sample stand (fig. 5A, #576-580) for placing a substrate (fig. 5A, #503)
- a stage (fig. 5A, #561a) for placing the photomask (fig. 5A, #514a);

Saito et al teaches

- “photomask including both a minute aperture where a main component of a transmitted light is an evanescent light ([0011], lines 5-6, where this apparatus utilizes evanescent light emerged from a fine aperture).”

Mizutani et al teaches

- “an aperture where a main component of a transmitted light is a propagating light ([0039], lines 2-3)” and “a photoresist with a film thickness equal to or smaller than a width of the minute aperture ([0043], lines 1-4, where the w of aperture is 40nm and film thickness ranges from 50nm - 120nm.)”

The above claimed limitations above are routines in the art as taught by the references provided. Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Martin in a matter described above for at least the purpose to inspect for aberrations.

Regarding claim 14, Martin further teaches “wherein the photomask comprises an elastic material as a mask material (fig. 4, #28 and col. 7, lines 2-3, where the mask has a compressible layer.)”

Regarding claim 15, modified Martin, as applied to claim 13, further teaches “wherein a width of the aperture where the main component of the transmitted light is the propagating light is smaller than a designed dimension in the photomask (Mizutani et al, [0044], lines 1-2, where two apertures maybe a different widths).”

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Inoue et al (5,723,236) discloses a half-tone film on a photomask, Hatakeyama et al (6,671,034) discloses a adopted evanescent field effect of the apparatus, Shiraishi et al (US 2003/012505) discloses a highly developed photomask, Kobinata et al (US 2001/0016292) discloses a mask with a plurality of apertures, and Tanaka et al (US 2003/0165750) discloses a phase-shift mask with an aperture pattern and an auxiliary pattern.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Gutierrez whose telephone number is (571)-272-5922. The examiner can normally be reached on Monday-Friday: 7:30 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William Perkey
Primary Examiner

Kevin Gutierrez
Examiner
Art Unit 2851

July 14, 2005